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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,323	11/21/2003	Akihiko Nakada	2003_1670A	9863

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WASHINGTON, DC 20006-1021

EXAMINER
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MUROMOTO JR, ROBERT H

ART UNIT	PAPER NUMBER
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3765

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/718,323

Applicant(s)

NAKADA ET AL.

Examiner

Robert H. Muromoto, Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/21/03; 8/5/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Priority*

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7-13, 16-22 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by European Patent 0257857 ('857 herein).

'857 discloses an apparatus for achieving a uniform ratio of pile to the ground warp (i.e. 'pile factor') which constitutes the fabric's foundation.

'857 maintains the ratio by automatically controlling not only pile warp tension, but also the distance the rocking bar moves during the weaving operation.

The pile warp yarn is dispensed from beam 12 in response to signals to the pile let-off motor 24. As pile warp yarn leaves beam 12, it passes over a flexible roller 26. A flag 28 is attached to the roller 26, the outer end of the flag being positioned adjacent to a proximity sensor 30. When the tension on the pile warp varies, roller 26 flexes, thus altering the distance between the flag 28 and sensor 30. The sensor thereby produces an electrical output signal, which is a function of pile warp tension. This arrangement corresponds to the recited "tension roll" and "pile tension controller".

An encoder 32 also is operably related to the pile warp yarn as it is discharged from beam 12. The encoder 32 rides on the pile warp yarn to produce an electrical signal, which accurately indicates the amount of yarn dispensed when the beam 12 rotates.

'857 includes circuitry 34 that includes a microprocessor. The circuitry incorporates appropriate memory which stores information relating both to the amount of ground warp yarn dispensed and programming for the microprocessor. With these inputs, the microprocessor continuously computes the pile-to-ground warp ratio (pile factor) occurring as the loom operates. If the ratio departs from the pre-programmed desired level (tolerance threshold), the microprocessor's output, when combined with that developed by proximity sensor 30, produces a signal (warning signal) which alters the operation of the pile warp let-off motor.

The circuitry also controls the pile warp supply beam 12, as it is either speeded up or slowed down, in response to the pile warp tension, by varying the control signals to the motor. This causes either an increase in the amount of pile yarn dispensed when the pile-to-ground ratio is too low, or a decrease in the pile yarn dispenser when the ratio is too high. As a result, the tension of the pile warp is maintained constant. (A variation in speed of a supply beam is the same as a variation in speed of the take up roll as recited by the instant invention)

The circuitry 34 includes conventional threshold detector means for the recognition of error in excess of a predetermined level (tolerance). When this occurs, the detector's output is directed to a motor controller 36 which in turn is joined to a

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further pile warp let-off motor 38. This motor operates a lead screw arrangement associated with a rocking bar 18 so as to alter the displacement of bar 18. As a result, the minimum spacing 'x' which occurs between the reeds 16 and the fell of the cloth being woven is altered. When spacing 'x' increases the height of the pile increases, which a decrease of the spacing 'x' results in the pile height decreasing.

The signal from the threshold detector directed to motor controller 38 is of a predetermined interval (tolerance) only. Thus, the adjustment of the rocking bar 18 is incremental. This provides the circuitry 34 with an opportunity to determine whether the adjustment of the displacement of the bar 18 has been sufficient to bring the pile-to-ground warp yarn ratio to a level where it can be controlled by the signals generated by sensor 30 and encoder 32. If an error sufficient to produce an output signal from the threshold detector persists after an incremental adjustment of the rocking bar 18 occurs, another such adjustment is made.

The recited altering of the "weft density" in the instant claims is considered inherent to '857. Any modification to the ground warp or pile warp supply/take-up speed would necessarily result in a change in weft density, assuming the rate of weft insertion is not altered, which in both cases they are not.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 6, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over '857 in view of Sugita '985.

Although '857 teaches essentially all of the limitations of the claimed invention '857 does not use the sensing and adjustment principles on the ground warp yarns to maintain the desired tolerance of pile factor.

The instant invention differs from '857 in only the fact that the means used for adjustment of the pile warp yarns is also used for the ground warp yarns.

However, Sugita '985 teaches a method of controlling warp yarn tensions in both the pile and the ground warp using tension rollers and varying speeds of the take-up mechanisms to keep the weaving tensions of the pile and the warp in the acceptable target range.

Therefore it would have been obvious to one of ordinary skill in the art to modify the teachings of '857 to use the adjustment means on the ground warp yarns, as they are already used on the pile warp yarns, to maintain the pile-to-ground ratio (pile factor) within the predetermined value (tolerance) threshold.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pile loom tension controlling methods have been cited.

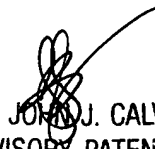
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert H. Muromoto, Jr. whose telephone number is 571-272-4991. The examiner can normally be reached on 8-530, M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Calvert can be reached on 703-305-1025. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bhm  
September 7, 2005

  
JOHN J. CALVERT  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700